

52 CCPA 930

Court of Customs and Patent Appeals

In re LARSON, RUSSLER, AND MELDAHL
Appl. No. 7282 Decided Feb. 4, 1965

PATENTS

1. Patentability — Divided and integral parts (§ 51.35)

Words and phrases (§ 70.)

While brake disc and clamp of reference comprise several parts, they are rigidly secured together as a single unit; constituent parts are so combined as to constitute a unitary whole, which is "integral" within meaning of claim; "integral" is not limited to a fabrication of parts from a single piece of metal, but is inclusive of other means for maintaining parts fixed together as a single unit; moreover, use of one piece construction instead of reference structure is matter of obvious engineering choice; claim is refused.

2. Claims — Functional — Defining ingredient, structure or use (§ 20.453)

Claim does not distinguish over reference by inclusion of functional statement relating to conveyance of heat since it defines no structure not shown by reference which would afford unobvious heat transmission.

3. Patentability—Aggregation or combination—Omission of part (§ 51.161)

If feature of reference structure is not desired, it would seem a matter of obvious choice to eliminate it and the function it serves; claim is refused.

Particular patents—Fluid Carrier

Larson, Russler, and Meldahl, Mobile Fluid Carrier Unit and Vehicle Assembly Thereof, claims 12, 15, and 16 of application refused.

Appeal from Board of Appeals of the Patent Office.

Application for patent of Arne V. Larson, Leveret C. Russler, and Walde-
mar J. Meldahl, Serial No. 737,656, filed
May 26, 1958; Patent Office Division 47.
From decision rejecting claims 12, 15,
and 16, applicants appeal. Affirmed.

ALLAN B. WHEELER and WHEELER,
WHEELER & WHEELER, both of Mil-
waukee, Wis., for appellants.
CLARENCE W. MOORE (L. F. PARKER of
counsel) for Commissioner of Patents.

Before WORLEY, Chief Judge, and RICH,
MARTIN, SMITH, and ALMOND, Asso-
ciate Judges.

ALMOND, Judge.

This is an appeal from the decision of the Patent Office Board of Appeals affirming a rejection of claim 12, and the examiner's refusal to allow claims 15 and 16, which were substituted for finally rejected claims 1 and 6. Eight claims were allowed.

Appellants' application¹ relates to a mobile fluid carrier unit and a vehicle assembly thereof.

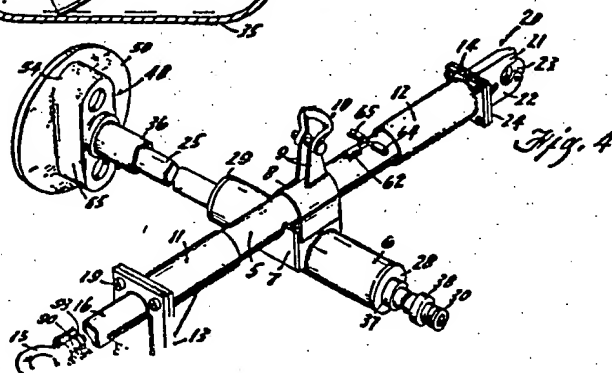
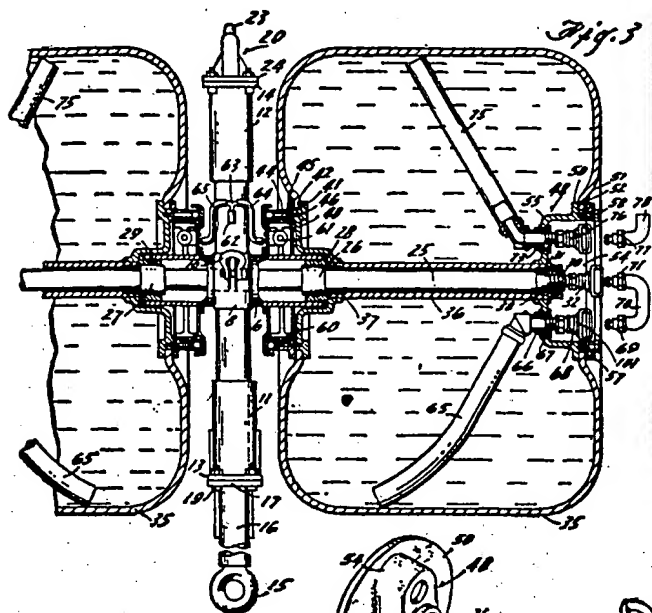
Claims 12 and 15 are illustrative:

12. In a vehicle, a wheel hub having annular rim flanges, each flange having an annular clamping seat, a flexible-walled casing having beads engaged with the respective seats, clamping means fastened to the respective rim flanges in clamping engagement with said beads to hold said beads to said seats to form a fluid-tight fluid cargo enclosure bounded by said wheel hub and said flexible-walled casing, and frictional brake means, said means including a brake drum integral with a said clamping means, whereby to transmit heat from the brake drum to said wheel hub for transmission to a fluid cargo disposed within said fluid-tight enclosure.

15. A transport unit having a relatively light frame, said frame consisting only of a longitudinally extending relatively light central frame element and a relatively light tubular transverse axle attached to said central frame element, a pair of relatively light wheel hubs mounted on said axle, and a pair of flexible-walled carrier casings, a said carrier casing being disposed about said axle directly adjacent to each side of said central frame element, said wheel hubs being sealed to said carrier casings to enclose the entire cargo space of said unit.

Further illustrative of the claimed invention, Figs. 3 and 4 of the drawings are reproduced below.

¹ Serial No. 737,656, filed May 26, 1958.



The three main features of the fluid carrier portrayed in the drawings are:

- (1) A flexible walled wheel 35 in which the fluid is carried.
- (2) A towbar 5 and hollow axle 25.
- (3) A frictional brake comprising brake shoe 60 and brake drum 44.

Each unit of the assembly comprises a sectional towbar 5, which is centrally affixed to an axle 25. The opposite ends of the towbar are provided with coupling means 15, 23 which serve to connect with like couplings on other identical units to provide a vehicle of several units. A pair of flexible-walled rolling tanks 35 which serve as wheels are mounted on the ends of the axles. Each tank or wheel has a hub portion which includes a tubular member 36 through which the axle extends and annular members 40, 48 at the respective inner and outer ends of the tubular member 36 spaced to support the rim flanges of flexible casing 35 which is clamped thereon by means of rings 45 and 57. Clamp ring 45 carries the rotatable

brake drum 44 engagable by a nonrotary brake shoe 60 operated by fluid pressure cylinder 61. Application of fluid to cylinder 61 exerts braking pressure to brake drum 44 which serves to decelerate each wheel 35. Inside each casing is a discharge hose 65 through which the casing may be filled or drained. A second hose 75 serves as a vent pipe. The brake drum 44 is integral with each inboard clamping ring 45.

The references relied on below are:

Le Clair et al. (British) 573,726, December 4, 1945

Arpin 2,548,190, April 10, 1951

Albee 2,952,468, September 13, 1960

Tuttle et al. 2,974,970, March 14, 1961

Like appellants' combination, Le Clair et al. discloses mobile tanks suitable for the transportation of liquids. The specification and drawings disclose a pair of tank wheels rotatably mounted on a transverse axle with a towbar centrally attached to the axle. The towbar has rear and front coupling means for disengagably attaching units. The

hollow wheels of formed of two shells welded to be encircled by a sleeve mounted on axle tube. The sleeve may be provided with a brake assembly.

Both Arpin and Albee show a hollow wheel mounted on an axle. The Arpin drawing shows a "tank" which does not rotate and a reservoir revolving to ground friction. Albee stated that the axle pin drawings show a body is filled with fluid sure through one end and that the tank at the other end of the pipe communicates with the carrier.

Tuttle et al. disclose a fluid carrying vehicle rather than drum or tank. The vehicle has a flexible-walled, casing wheel. A frame of the wheel is mounted through the wheel hub and the frame of the wheel. The sleeve is a clamp on the wheel hub and the brake disc and brake pads are secured to the wheel hub by the sleeve. The sleeve is individually by the board and were removed.

Claim 12 was rejected over Tuttle et al. as the brake disc or sleeve is equivalent of a considered the disc to clamping means flexible casing.

Claim 12 calls for a hub having an annular flange having a seat; (2) "a having beads engaged to the seat"; (3) "to hold the beads to the fluid cargo enclosure brake means" an integral with a sleeve. Limitations (1)

hollow wheels of Le Clair et al. are formed of two dishshaped, inflexible shells welded to the inside of a T-ring encircled by a steel band. The wheels are mounted on an axle fixed in an axle tube. The specification states that "If so desired, each of the tank-wheels may be provided with an over run brake assembly * * *."

Both Arpin and Albee show the use of a hollow wheel-like flexible body mounted on an axle as a mobile fuel carrier. The Arpin patent states that his "tank is provided with a central axle which does not rotate with the tank, the reservoir revolving thereabout pursuant to ground friction when the axle is pulled as during towing." It is also stated that the axle is hollow. The Arpin drawings show that the flexible body is filled with fluid under pressure through one end of the hollow axle and that the tank is vented through the other end of the axle with a vertical pipe communicating with the axle to control the venting of air. Both Arpin and Albee show a tubular towbar and a frame affixed to the axle for towing the carrier.

Tuttle et al. discloses a fluid transporting vehicle having disc brakes rather than drum brakes as claimed by appellant. The Tuttle vehicle has one flexible-walled, cylindrical, fluid-carrying wheel. A hollow axle extends through the wheel and is connected to the frame of the vehicle at its ends. Brake discs are provided on a sleeve which is mounted on the axle between the wheel hub and the end of the axle. The sleeve is attached to a casing clamp on the wheel hub by bolts. The brake disc and hydraulically actuated brake pads are spaced away from the wheel hub by the sleeve.

The appealed claims were considered individually by the examiner and the board and were rejected on independent grounds.

Claim 12 was rejected as unpatentable over Tuttle et al. The board regarded the brake disc of Tuttle et al. as the equivalent of a brake drum and considered the disc to be integral with the clamping means for the bead of the flexible casing.

Claim 12 calls for: (1) "a wheel hub having annular rim flanges, each flange having an annular clamping seat"; (2) "a flexible-walled casing having beads engaged with the respective seats"; (3) "clamping means fastened to * * * the rim flanges" to hold the beads to "form a fluid-tight fluid cargo enclosure"; (4) "frictional brake means" and (5) "a brake drum integral with a said clamping means."

Limitations (1), (2), (3) and (4)

are clearly met by Tuttle et al. As to limitation (5) instead of a brake drum integral with the clamping means, Tuttle et al. show a brake disc rigidly secured to the clamping means. In this connection the board stated:

The essential difference between the Tuttle et al. construction and that of claim 12 is the manner of connecting the brake disc or drum to the wheel hub. While the term "integral" is not limited to a fabrication of the parts from a single piece of metal, but is inclusive of other means for maintaining the parts fixed together as a single unit * * *.

[1] While the brake disc and clamp of Tuttle et al. comprise several parts, they are rigidly secured together as a single unit. The constituent parts are so combined as to constitute a unitary whole.

Webster's New International Dictionary (Second Edition) defines "integral" as "(2) Composed of constituent parts making a whole; composite; integrated."

We are inclined to agree with the board's construction of the term "integral" as used in claim 12. Then, too, we are inclined to agree with the position of the solicitor that the use of a one piece construction instead of the structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice. In re Fridolph, 50 CCPA 745, 309 F.2d 509, 135 USPQ 319.

[2] Claim 12 includes a functional statement relating to the conveyance of heat from the brake drum to the hub of the wheel for transmission to the fluid cargo. This statement is predicated on appellants' "brake drum integral" with the clamping means. The board reasoned that:

* * * this feature does not contribute to a better heat transfer in appellants' construction because the heat dissipated by the brake drum must still cross the joint between the clamping ring and the hub since the clamping ring is otherwise insulated from the cargo fluid by the flexible tire casing material positioned between the clamp and the hub. No difference in structure has been pointed out that would afford an unobvious improved heat transfer from the brake to the cargo fluid.

We agree with the board that the claim defines no structure not shown by Tuttle et al. which would afford an unobvious heat transmission and therefore does not distinguish over the applied reference. In re Mason, 44 CCPA 937, 244 F.2d 733, 114 USPQ 127.

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Fig. 4

As correctly analyzed by the solicitor, claim 15 is drawn to a transportation unit which includes:

1. a longitudinally extending light frame
2. a relatively light tubular transverse axle attached to the frame
3. a pair of relatively light wheel hubs mounted on the axle, and
4. a pair of flexible walled carrier casings disposed about the axle and sealed to the hub.

The board sustained the examiner's rejection of claim 15 as unpatentable over Le Clair et al. in view of either Arpin or Albee. The examiner considered it obvious to replace the rigid cargo containing wheels of Le Clair et al. with the flexible-casing cargo-containing wheels of Arpin and Albee.

The board pointed out that the claim requires the frame to consist only of a central frame and a tubular transverse axle; that Le Clair et al. disclose such a frame and axle responding fully to the structure as claimed except for added features for increasing cargo capacity such as containers for housing various articles in addition to liquid cargo carried in the hollow wheels. We agree with the board that it would be obvious to dispense with the added cargo handling features of Le Clair et al. and use the frame without those features. The board reasoned that if a hollow axle without more has the potential for use as a liquid transfer in appellants' vehicle, "it likewise must have that same potential in the Le Clair et al. vehicle since we find no claimed difference in structure over the reference."

The use of flexible casings for the cargo wheels of Le Clair et al. would be obvious in view of the teachings of either Arpin or Albee, who both teach the use of tank-type flexible-walled containers for liquid cargo carrier wheels. The apparent advantages and adaptable uses for such structures would afford ample reason to a skilled designer to adapt them to the Le Clair et al. vehicle.

Claim 16 adds to claim 15 frictional brake means defined in claim 12. As previously noted, Tuttle et al. disclose a brake disc rigidly connected to a bead clamping means. With reference to claim 16 the board stated that it:

* * * calls for both the brake construction of claim 12 and the frame construction of claim 15 and is unpatentable over the references as applied by the examiner for the reasons set out * * * in our consideration of claims 12 and 15. Both the frame feature and the brake feature

present to the vehicle combination only those advantages and results which are separately present individually in the prior art and this renders the combination of the two features obvious and routine.

The Le Clair et al. disclosure affords explicit suggestion for combining these features. The patent states:

If so desired, each of the tank wheels may be provided with * * * [a] brake assembly * * *. Such brake mechanism may be of known construction and may be arranged to operate brake bands applied * * * to a ring fitted to the inner or outer face of the tank-wheel.

Appellants argue that the board's holding that Le Clair et al. show the claimed structure is incorrect. They point out that the reference shows a great deal of additional framework, that it shows two axles, each solid.

[3] The added structure shown in the Le Clair et al. patent serves a particular purpose in that it increases the cargo carrying capacity. If this additional features is not desired, it would seem a matter of obvious choice to eliminate it and the function it serves. In re Listen, 30 CCPA 1223, 136 F.2d 719, 58 USPQ 481.

The assertion that the Le Clair et al. patent is limited to two axles overlooks the fact that it specifically states that the axle assembly may comprise "either a single axle or two axles fixed in an axle tube * * *. While the axle is said to be solid, the use of a tubular axle is suggested by Arpin who shows a tubular axle connected directly to a towbar.

Appellants assert that there is "no reference which shows a trailer having two flexible-walled cargo carrying casings." The Tuttle et al. disclosure refutes that assertion since it clearly shows a trailer having two flexible-walled cargo-carrying casings in tandem relation. Aside from the flexible feature, Le Clair et al. shows such a structure with the casings in side-by-side relation.

Upon consideration of the record before us and the arguments of counsel, we are of the opinion that appellants' claimed improvements in mobile fluid carrier units are suggested by the references cited.

The decision of the board is *affirmed*.